Federal Highway Administration Motorcycle Crash Causation Study

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Past Studies: Brief Review

- "Motorcycle Accident Cause Factors and Identification of Countermeasures, " 1981
  - Hurt, Ouellet, Thom, USC Traffic Safety Center
  - NHTSA sponsored
- "Motorcycle Accident In-Depth Study" (MAIDS), 1999-2000
  - Nick Rodgers, Chair, MAIDS management Group, "
  - Association of European Motorcycle Manufacturers (ACEM) sponsored
- "Motorcycle Accident Causation and Identification of Countermeasures in Thailand" , 2001
  - Kasantikul, V, MD,

Past Studies: Hurt, et al.

- Objectives
  - Examine crash causes
  - Determine effectiveness of helmets (protective equipment)
  - Identify countermeasures
- Methodology
  - Use of multidisciplinary team
  - 900 in-depth MC crashes investigated
  - 505 matched MC control investigations

Past Studies: Hurt, et al.

- Some Key Findings
  - Crash causes—failure of motorist to detect motorcyclist
  - Protective equipment—qualified safety helmet is critical significant item
  - Countermeasures—require training, improve licensing, increase conspicuity

Past Studies: MAIDS

- **Objectives**
  - Identify causes and consequences of Powered Two Wheeler (PTW) crashes
  - Determine risk factors for PTW crashes (using case-control method)
  - Apply data to develop countermeasures to reduce frequency and severity of PTW crashes
- **Methodology**
  - Use of method developed by Organisation for Economic Cooperation and Development (OECD)
  - 921 in-depth MC crashes - 2000 variables
  - 505 MC controls - acquired at fueling stations

Past Studies: MAIDS

- Some Key Findings
  - In 50% of crashes, the primary crash contributing factor was human error on part of the OV driver
  - In 37% of crashes, the primary crash contributing factor was a human error on the part of the PTW rider
  - 70% of crashes occurred on straight roadway alignments
  - 52% of crashes occurred on a minor arterial
  - 21% occurred on a major arterial
  - 4.2% occurred on a motorway

Past Studies: Thailand*

- Objectives
  - ID causes and characteristics of MC crashes
  - ID MC crash related injuries and the contact surfaces causing these injuries
  - ID risk factors by comparing crash and comparison samples
  - ID countermeasures with potential to reduce the frequency of crashes and to reduce the severity of those that occur

* Thailand study was actually two separate studies: Bangkok and Upcountry. Only Bangkok is described here.

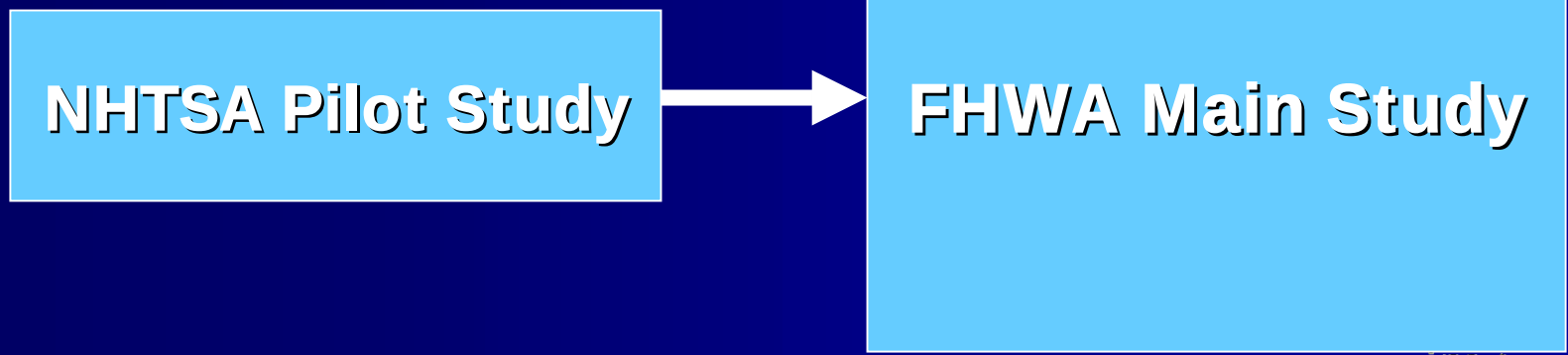
Past Studies: Thailand

- **Methodology**
  - 723 in-depth on-scene MC crashes in
  - Exposure data gathered at location of crash, 1 week later at same time of day using video AND at fueling stations (~ 2100 interviews)
  - Helmet and injury analyses

Past Studies: Thailand

- Some Key Findings
  - Rider error most frequent primary cause in both single and multiple vehicle crashes
    - Alcohol, 40 % involvement
    - Riding / driving errors, about 50 % involvement
  - Roadway design and maintenance contributed to 12.5 % of crashes
  - Most frequent accident type was motorcycle rear-ending another vehicle
  - Absence of training is responsible for such a predominant role of rider errors (only 1 rider reported any training)

Coordination Between NHTSA Pilot Study & FHWA Main Study



NHTSA Pilot Study: Objective

"to acquire the necessary data that will allow determination of an effective method for performing a full scale motorcycle crash causation study, and to determine the main factors contributing to crash causation in motorcycles …, and the main factors relevant to crash outcomes with a focus on possible means to mitigate these outcomes.

NHTSA Pilot Study: Milestones

Milestones	Date
Data Collection Instruments & Coding Developed	November 2006
Study Site Selected	December 2006
Data Collection Training Completed	April 2007
Data Collection Initiated	September 2007
Data Collection Completed	November 2007
Final Report	February 2008

FHWA Motorcycle Crash Causation Study: Background

- SAFETEA-LU, Section 5111
  - Grants to the Oklahoma Transportation Center (OTC) to conduct an in-depth motorcycle crash causation study that employs the OECD methodology
  - Funding under Section 5101(a)(1), $1,408,000 for each of FY 06 & 07

FHWA Motorcycle Crash Causation Study: Background

- SAFETEA-LU, Section 5101
  - …the Federal share of the cost … shall be 50 percent
  - OTC must provide at least a $2,816,000 match

FHWA Motorcycle Crash Causation Study: Status of Grant

- Cooperative Agreement signed
- Begins 1 September 2006
- Period of performance: 48 months
- Actual total funding: ~ $5.6M

FHWA Motorcycle Crash Causation Study: Objective

" ... using the methodology developed by the OECD ... shall focus on the relevant aspects of motorcycle crashes susceptible to countermeasures that ... will prevent motorcycle crashes from occurring or will lessen the harm resulting from motorcycle crashes."

FHWA Motorcycle Crash Causation Study: Focus Areas

- Risk factors
  - Rider & driver characteristics
    - Training
    - Age
    - Gender
    - Experience
    - Alcohol
  - Vehicle Characteristics
  - Roadway geometrics & traffic characteristics
- Crash types

FHWA Motorcycle Crash Causation Study: Milestones

Milestones	Date
Project Working Group Meeting	June 06, annually
Finalize Work Plan	November 2006
Website	March 2007
Pilot Data Collected	September 2007
Begin Main Data Collection	November 2007
Draft Final Report	May 2010
Final Report	August 2010

Contact Information

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